

INTERNATIONAL SEARCH REPORT

International Application No

PCT/IB2004/003478

A. CLASSIFICATION OF SUBJECT MATTER
IPC 7 F16K31/06 F16K31/08

According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)
IPC 7 F16K

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practical, search terms used)

EPO-Internal

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	US 3 758 071 A (ANDERSON V, US ET AL) 11 September 1973 (1973-09-11)	1-3, 7-9
Y		6, 12
Y	EP 1 277 694 A (AZIONARIA COSTRUZIONI) 22 January 2003 (2003-01-22) cited in the application abstract; figures	6, 12
A	EP 1 316 750 A (TGK CO LTD) 4 June 2003 (2003-06-04) cited in the application abstract; figures	1
A	US 2002/177237 A1 (OSING JUERGEN ET AL) 28 November 2002 (2002-11-28) cited in the application abstract; figures 18, 24	1
	-/-	

☒ Further documents are listed in the continuation of box C.

☒ Patent family members are listed in annex.

* Special categories of cited documents:

- *A* document defining the general state of the art which is not considered to be of particular relevance
- *E* earlier document but published on or after the international filing date
- *L* document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)
- *O* document referring to an oral disclosure, use, exhibition or other means
- *P* document published prior to the international filing date but later than the priority date claimed

- *T* later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention
- *X* document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone
- *Y* document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art.
- *&* document member of the same patent family

Date of the actual completion of the international search

16 February 2005

Date of mailing of the international search report

23/02/2005

Name and mailing address of the ISA

European Patent Office, P.B. 5818 Patentlaan 2
NL - 2280 HV Rijswijk
Tel. (+31-70) 340-2040, Tx. 31 651 epo nl,
Fax: (+31-70) 340-3016

Authorized officer

Christensen, J

INTERNATIONAL SEARCH REPORT

International Application No

PCT/IB2004/003478

C.(Continuation) DOCUMENTS CONSIDERED TO BE RELEVANT

Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
A	US 2003/160673 A1 (OTT HUBERT) 28 August 2003 (2003-08-28) the whole document -----	1
A	US 6 378 545 B1 (BOZKAN AYTEKIN ET AL) 30 April 2002 (2002-04-30) the whole document -----	1

INTERNATIONAL SEARCH REPORT

Information on patent family members

International Application No

PCT/IB2004/003478

Patent document cited in search report		Publication date	Patent family member(s)	Publication date
US 3758071	A	11-09-1973	NONE	
EP 1277694	A	22-01-2003	IT B020010463 A1 EP 1277694 A2	20-01-2003 22-01-2003
EP 1316750	A	04-06-2003	JP 2003166664 A DE 60201405 D1 EP 1316750 A1 US 2003146402 A1	13-06-2003 04-11-2004 04-06-2003 07-08-2003
US 2002177237	A1	28-11-2002	CA 2441797 A1 EP 1379332 A2 WO 02076615 A2 IE 20020212 A1	03-10-2002 14-01-2004 03-10-2002 02-10-2002
US 2003160673	A1	28-08-2003	DE 10206778 A1 DE 10230180 A1 AU 2003218872 A1 AU 2003218873 A1 CN 1439833 A CN 1439826 A CN 1439828 A CN 1439827 A WO 03071175 A1 WO 03071176 A1 DE 10390648 D2 DE 10390683 D2 DE 20203342 U1 EP 1336783 A2 EP 1336784 A2 EP 1336785 A2 EP 1336786 A2 EP 1476686 A1 EP 1476687 A1 EP 1457723 A2 JP 2004036878 A JP 2004036879 A US 2003159453 A1 US 2003160672 A1 US 2003159454 A1	28-08-2003 28-08-2003 09-09-2003 09-09-2003 03-09-2003 03-09-2003 03-09-2003 03-09-2003 28-08-2003 28-08-2003 05-01-2005 05-01-2005 08-08-2002 20-08-2003 20-08-2003 20-08-2003 20-08-2003 17-11-2004 17-11-2004 15-09-2004 05-02-2004 05-02-2004 28-08-2003 28-08-2003 28-08-2003
US 6378545	B1	30-04-2002	WO 0017551 A1 DE 19943066 A1 DE 59909745 D1 EP 1046005 A1 JP 2002525524 T	30-03-2000 30-03-2000 22-07-2004 25-10-2000 13-08-2002